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1. European Patent Number: 0242719

2. Name
Gebruder Sulzer Atkiengesellschaft
Address
Zurcherstrasse 9
CH-8401 Winterthur
Switzerland

3. European Patent Bulletin Date:
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4. Name of Agent (if any)
Kilburn & Strode
Agent's Patent Office ADP number (if known): 125001

5. Address for Service
Chinnery Walker & Bray
c/o Sharp Parsons & Tallon & Co.
Brettenham House
Lancaster Palace
London
Postcode WC2E 2HT

6. Signature:
Date: 08 11 90
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R. VREELAND & CO
Translators

Africa House
Kingsway
London WC2
England

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Signature F W J Humphries

Date

The invention relates to a replacement acetabulum comprising: a plastics rotationally symmetrical socket receiving the actual acetabulum shell; and a metal mesh anchored in the outside surface of the socket.

An acetabulum of the aforementioned kind has already been proposed (CH-A-655 770 and the resulting EP application 85115115.9, published as EP-A-0 190 422 and constituting the prior art according to EPC Article 54(3)). In this acetabulum, a multilayer wire mesh is pressed into the outer surface of a plastics socket, a layer of the mesh being embedded in the plastics in order intimately to bond the two substances. To obtain a permanent anchorage in the bone, tissue grows into the remaining layers of the mesh, which forms a porous "outer skin" of the acetabulum. Before permanent anchoring by ingrowing tissue, the acetabulum is initially fixed by prestress in the hip-bone (CH-A-666 609).

The object of the invention is to improve the initial fixing of the previously-described acetabulum and provide a resilient connection between the mesh-reinforced acetabulum and the bone. To this end, according to the invention, a plurality of tabs projecting from the equatorial edge are present on the metal mesh symmetrically of a meridian plane of the shell and socket, are permanently deformable intraoperatively and are formed at least to some extent with through bores for bone screws or bone nails.

Tabs, which can be intraoperatively deformed or partly cut off, can be used directly during implantation for securing the acetabulum to the hip-bone by nails and/or screws, and since the tabs form part of the mesh, the elastic deformability of the acetabulum is not impermissibly reduced.

As a result of the symmetrical construction and the fact that individual tabs can be "cut off" intraoperatively, the same kind of acetabulum can be used for the right and the left joint, and can also meet requirements regarding the various places and directions in which the screws or nails are inserted. These two properties considerable simplify manufacture and storage. There is also a relatively free choice regarding the places for fixing in the hip-bone.

This is particularly important for "re-operation" acetabula, used during subsequent operations to replace a previously-inserted artificial acetabulum. With regard particularly to re-operation, the tabs can have different radial lengths and/or can have a number of radially consecutive through bores.

An embodiment of the invention will now be described in detail with reference to the drawings, in which:

Fig. 1 is a diagrammatic view of the novel acetabulum in the axial direction thereof, and

Fig. 2 is a side view.

A hemispherical shell 1 receiving the joint head (not shown) of a femur-head prosthesis is disposed in a plastics socket 2, made e.g. of polyethylene. Shell 1 and socket 2 are rotationally symmetrical with respect to the axis 3 of the acetabulum (Fig. 2). Socket 2 is formed with bores 4 for driving nails or screws into the hip-bone.

A metal grid in the form of a multi-layer wire mesh 5 is disposed on the outer surface of socket 2 and constitutes a reinforcing element which also anchors the acetabulum in the hip-bone. Socket 2 and mesh 5 are firmly interconnected, in that the innermost layer of mesh 5 is pressed into the plastics socket 2. According to the invention a number of tabs 6, 8 are disposed on the equatorial edge of the mesh 5 and are also formed with bores 7. The thickness d (Fig. 2) of mesh 5 or tabs 6, 8 is chosen so that they can be permanently deformed intraoperatively and adapted to the surface at which they bear on the hip-bone, or a part of them can be cut off without difficulty.

To enable the same acetabulum to be used in either the left or the right hip, tabs 6, 8 and bores 4 in socket 2 are distributed round the edge of the acetabulum or the mesh 5 so as to be symmetrical with respect to a plane 9 through the acetabulum axis 3.

Of course, the novel acetabulum can be used not only for cement-free implantations but also in conjunction with bone cement, resulting in mechanical "locking" between the metal grid and the bone cement.

C L A I M S

1. A replacement acetabulum comprising: a plastics rotationally symmetrical socket receiving the actual acetabulum shell; and a metal mesh anchored in the outside surface of the socket, characterised in that a plurality of tabs (6, 8) projecting from the equatorial edge are present on the metal mesh (5) symmetrically of a meridian plane (9) of the shell (1) and socket (2), are permanently deformable intraoperatively and are formed at least to some extent with through bores (7) for bone screws or bone nails.

2. A replacement acetabulum according to claim 1, characterised in that the tabs (6, 8) are of different radial lengths.

3. A replacement acetabulum according to claim 1 or 2, characterised in that discrete tabs (6) are formed with a number of radially consecutive through bores (7).

Fig. 1

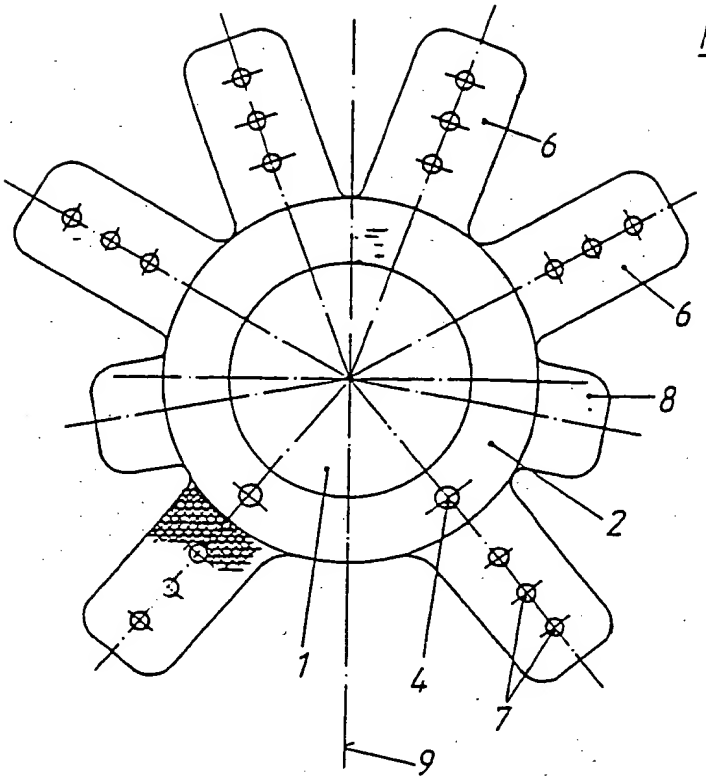

Fig. 2